

AMENDMENTS TO THE CLAIMS

1. (Original) A fan cooling system with high availability comprising:
  - a first fan coupled with a first motor for creating a first air flow;
  - a second fan coupled with a second motor for creating a second air flow;
  - a duct system for conveying said first air flow and said second air flow to at least one heat sink; and
  - a control system coupled with said first fan motor and said second fan motor.
2. (Original) The fan cooling system of Claim 1 wherein said first motor and said second motor are removably coupleable with said fan cooling system.
3. (Original) The fan cooling system of Claim 1 wherein said first motor and said second motor are configured to operate at variable speeds.
4. (Original) The fan cooling system of Claim 1 wherein said control system further comprises:
  - a motor performance monitoring unit configured to determine a performance metric of said first motor and a performance metric of said second motor.
5. (Original) The fan cooling system of Claim 4 wherein said motor performance monitoring unit comprises:
  - a first tachometer configured to determine the rotational speed of said first motor; and
  - a second tachometer configured to determine the rotational speed of said second motor.
6. [[7]] (Currently Amended) The fan cooling system of Claim 4 wherein said motor performance monitoring unit comprises:
  - a current monitoring device for determining the amount of current used by said first motor; and

a second current monitoring device for determining the amount of current used by said second motor.

7. [[8]] (Currently Amended) The fan cooling system of Claim 4 wherein said motor performance monitoring unit comprises:

a comparator for comparing a measured performance metric of said first motor with a pre-defined parameter and for comparing a measured performance metric of said second motor with a pre-defined parameter.

8. [[9]] (Currently Amended) The fan cooling system of Claim 7 [[8]] wherein said motor performance monitoring unit further comprises:

a power control subsystem; and

a controller coupled with said power control subsystem and configured to generate a command to said power control subsystem in response to a signal from said comparator.

9. [[10]] (Currently Amended) The fan cooling system of Claim 8 [[9]] wherein said controller causes said power control subsystem to dynamically alter the operating speed of said second fan when said performance metric of said first motor exceeds said pre-defined parameter.

10. [[11]] (Currently Amended) The fan cooling system of Claim 4 wherein said motor performance monitoring unit comprises:

a state machine for determining when said performance metric of said first motor exceeds a pre-defined parameter and for automatically generating a command to a power control subsystem to dynamically alter the operating speed of said second fan.

11. [[12]] (Currently Amended) A redundant fan cooling system comprising:  
a plurality of variable-speed fan motors removably coupleable with said redundant fan cooling system;

a plurality of fans, each of said plurality of fans coupled respectively with one of said plurality of variable-speed fan motors;

a ducting system for conveying air flow from each of said fans to a heat dissipating device; and

a controller for dynamically changing the operating speed of at least one of said plurality of variable-speed fan motors in response to a measured performance metric.

12. [[13]] (Currently Amended) The redundant fan cooling system of Claim 11 [[12]] wherein said controller further comprises:

a monitoring unit configured to determine a performance metric of each of said plurality of variable-speed fan motors.

13. [[14]] (Currently Amended) The redundant fan cooling system of Claim 12 [[13]] wherein said monitoring unit comprises:

a current monitoring device for monitoring the amount of current used by each of said plurality of fan motors.

14. [[15]] (Currently Amended) The redundant fan cooling system of Claim 12 [[13]] wherein said monitoring unit comprises:

a tachometer to monitor the rotational speed of each of said plurality of variable-speed fan motors.

15. [[16]] (Currently Amended) The redundant fan cooling system of Claim 11 [[12]] wherein said controller further comprises:

a comparator for comparing said measured performance metric with a pre-defined parameter.

16. [[17]] (Currently Amended) The redundant fan cooling system of Claim 15 [[16]] wherein said controller dynamically changes the operating speed of said at

least one of said plurality of variable-speed fan motors when said measured performance metric exceeds said pre-defined parameter.

17. [[18]] (Currently Amended) The redundant fan cooling system of Claim 11 [[12]] wherein said controller further comprises:

a state machine for determining said measured performance metric exceeds a pre-defined parameter and for automatically generating a command to a power control subsystem to dynamically alter the operating speed of said second fan.

18. [[19]] (Currently Amended) A method for providing redundant availability in a fan system comprising:

coupling each of a plurality of fan motors with a respective fan;  
configuring a duct to guide air flow from said plurality of fans to a heat sink;

comparing the performance of each of said plurality of fan motors with a pre-defined parameter; and

selecting a fan motor speed for one of said plurality of fan motors based upon said comparing.

19. [[20]] (Currently Amended) The method as recited in Claim 18 [[19]] further comprising:

receiving a measured performance metric from a monitoring device; and using a comparator to compare said measured performance metric with said pre-defined parameter.

20. [[21]] (Currently Amended) The method as recited in Claim 19 [[20]] wherein said monitoring device comprises:

a current monitoring device for monitoring the amount of current used by each of said plurality of fan motors.

21. [[22]] (Currently Amended) The method as recited in Claim 19 [[20]] wherein said monitoring device comprises:

a tachometer to monitor the rotational speed of each of said plurality of fan motors.

22. [[23]] (Currently Amended) The method as recited in Claim 18 [[19]] further comprising:

operating each of said plurality of fan motors at a first operating speed;

determining that the performance of a first fan motor of said plurality of fan motors exceeds said pre-defined parameter;

disengaging said first fan motor; and

changing the operating speed of a second fan motor of said plurality of fan motors to a second operating speed.